

### REMARKS

Claims 58, 68 and 70 have been amended in accordance with the action's suggestion. Minor typographical amendments have been made to claims 59, 72, 74, 92 and 99. Claims 57 – 75, 91 – 93 and 98 – 100 currently pending in this application. These amendments add no new matter.

The action objected to claims 57-75, 91-93 and 98-100 as being indefinite for failing to particularly point out distinctly claimed subject matter which applicant regards as the invention.

As to claims 5, 61, 62, 66, 67, 72, 91 and 98, the action objected to the use of the terms “contra-directional” and “co-directional.” The action acknowledged that these terms were defined in the specification at paragraph [0053]: “The reflection associated with the transmitted coded pulse sequence is referred to the contra-directionally coupled response while that associated with the reflection returned from the end of the lead-out cables is referred to the co-directionally coupled response.”

The meaning of the terms in the claims may be ascertainable by reference to the description. MPEP 608.01 (i). *Ex parte Schauerte*, Appeal No. 2005-2547, p.4 (Bd. Pat. Appl. & Int. 2007): “If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, §112 demands no more.” *Ex parte Yamamoto et al.*, Appeal No. 2001-0302 (Bd. Pat. App. & Int. 2002) at pp 5-6: “In making this determination, the definiteness of the language employed in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one

possessing the ordinary level of skill in the pertinent art.”<sup>1</sup>

Applicant respectfully submits that it is unnecessary, where the terms have been defined in the specification, as acknowledged by the Examiner, to reintroduce the definition of the terms in the claims themselves.

In any event, claim 57 provides: “identifying in the RX signal a contra-directional reflection received from a target” and “a co-directional reflection received from the far-end (F) of the first transmission line; and”, which replicates the definition set out in paragraph 53 of the specification.

In any event, Applicant respectfully submits that the terms “co-directional” and “contra-directional” coupling are well understood by a person of ordinary skill in the art. Applicant submits a number of articles known in the art, which reflect this knowledge by a person of ordinary skill, namely, *Coupled-Line Metamaterial Coupler having Co-Directional Phase but Contra-Directional Power Flow* - Islam R.; Elek F.; Eleftheriades, G.V., IEEE Electronics Letters Volume 40, Issue 5, 4 March 2004 (pages 315-317) and *Advancements in Leaky Cable Technology for Intrusion Detection* – Dr. RK Harmon and John E. Siedlarz, 1982 Carnahan Conference on Security Technology, May 12-14, 1982 at page 118.

Applicant submits that a person of ordinary skill in the art would understand the term as having the following interpretations: When two open transmission lines run parallel and in proximity to each other, energy is coupled from one transmission line to the other. When the coupled signal propagates in the same direction as a source signal, it is referred to as “co-directional coupling”. When the coupled signal propagates

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<sup>1</sup> These opinions are enclosed herewith.

in the opposite direction to the source signal, it is referred to as “contra-directional coupling”. The terms “forward and backward coupling” may also be used, but the terms “co-directional” and “contra-directional” are preferred. In some cases coupling between transmission lines is referred to as “cross-talk” but this term refers to the coupling and not specifically to the relative direction of the coupling.

Based on the foregoing, Applicant respectfully submits that the Examiner’s objection with respect to claims 57 have been overcome. Similar arguments are submitted in respect of claims 61, 62, 66, 67, 72, 91 and 98. Claims 58-59, 63-65, 73-75, 92-93, 99-100 depend from one of the objected to claims, which Applicant submits are now allowable. As such, Applicant submits that this objection has been respectfully traversed.

The Examiner objects to the claim limitation “thumbtack correlation” in claim 58 as being indefinite and not well explained and described in the specification for further claim consideration.

Applicant respectfully submits that this term too is well understood by a person of ordinary skill in the art. In support of this contention, Applicant submits an extract from the text *Introduction to Radar Systems* by Merrill I. Skolnik at pages 418-419, where Figure 11.13 (i) describes a so-called “thumbtack ambiguity” diagram. Applicant respectfully submits that a person of ordinary skill would understand from this and similar publications that a thumbtack response or correlation is relatively well understood. Such understanding may be summarized as follows: Many radar systems utilize correlation detection. Typically a coded pulse sequence is transmitted and a

small percentage of this coded pulse signal is reflected from the target back to the receiver. This reflected signal is correlated with the transmitted signal. In effect, the reflected signal is mixed with a time delayed version of the transmitted signal with a different time delay relating to each range bin. This auto correlation process results in the range ambiguity function. When this range ambiguity function has only one large peak and no side lobes it is referred to as a “thumbtack” response or correlation. The summation of complementary co-responses is one way to generate a thumbtack response. Again, for the reasons expressed above, Applicant respectfully submits that the term “thumbtack correlation” would be understood by a person of ordinary skill in the relevant art so that the claim is therefore allowable.

The action objected to claims 58, 68 and 70 on the basis that the claim limitation “a plurality B of points along the sensor cable, defined in range bins” in claim 58, “a plurality B of range bins” in claim 68 and associated “B” in claim 70 are indefinite. Applicant has amended claims 58, 68 and 70 to reflect changes along the line suggested by the action.

### **Conclusion**

Applicant respectfully submits that all of the outstanding objections have been overcome by way of amendment or argument. Applicant believes that no new matter has been entered during this process. Applicant respectfully submits that all of the claims presently standing in the application are patentably distinguished from all of the references of record either taken alone or in any combination. Accordingly, reconsideration and allowance of this application is respectfully requested.

Favorable reconsideration and allowance of this application are respectfully requested. Should the Examiner believe however that additional amendments to the claims may be required to secure allowance of this application; he is invited to telephone the undersigned at the below-noted number to facilitate further prosecution of this application.

Respectfully submitted,

Robert Harman

By           /Stephen B. Schott/            
Stephen B. Schott  
Registration No. 51,294

Volpe and Koenig, P.C.  
United Plaza, Suite 1600  
30 South 17th Street  
Philadelphia, PA 19103  
Telephone: (215) 568-6400

SBS/jal